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Swine Enteric Coronavirus Disease (SECD) Situation Report

December 19, 2014

Analysis of data received as of December 13, 2014

This report provides an update of Indiana activities under the USDA Federal Order, *Reporting, Herd Monitoring, and Management of Novel Swine Enteric Coronavirus Diseases*, effective June 5, 2014. The Indiana State Board of Animal Health (BOAH) will issue this report on a biweekly basis to summarize data on all porcine epidemic diarrhea virus (PEDv) and porcine delta coronavirus (PDCoV) testing conducted at the Purdue University Animal Disease Diagnostic Laboratory, the Iowa State University Veterinary Diagnostic Laboratory, and the University of Minnesota Veterinary Diagnostic Laboratory. These laboratories conduct an estimated 99% of all SECD testing for Indiana premises and send these results directly to BOAH. Some additional information on testing performed at other laboratories is obtained using the USDA SECD database. Any information derived from other sources is clearly identified and explained.

General information about the SECD monitoring and control program in Indiana is provided on the BOAH website at: www.in.gov/boah/2680.htm

Summary Data – June 5, 2014 through December 13, 2014

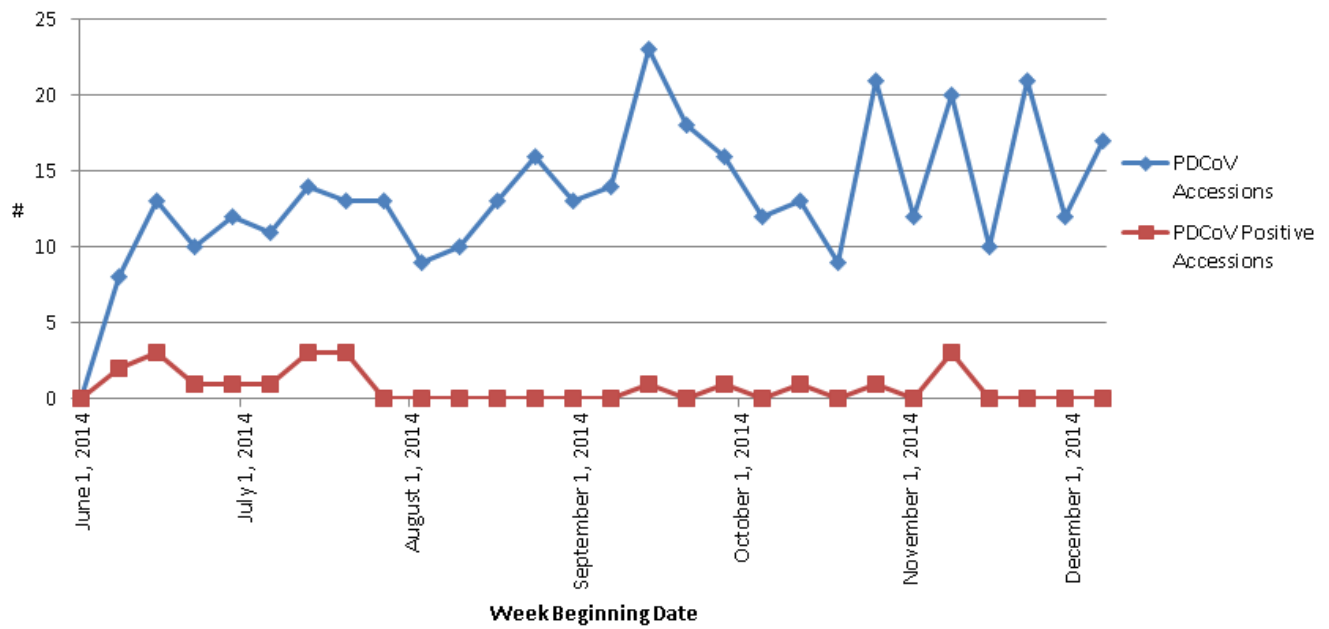
The number of accessions submitted for SECD testing has fluctuated from week to week since the beginning of the federal order. Each accession represents a test or set of tests performed on specimens from an individual premises. The maximum number of accessions in one week for PED occurred the week of August 24, 2014 with 49 accessions. This is 10 more accessions than the next highest volume week, which occurred during the week of August 17, 2014 with 39 accessions. Since June 5, the number of PED accessions ranged from 8 to 49, and averaged 28 accessions per week. In this timeframe only been two weeks have had zero PED positive accessions, and both of these occurred in November. A positive accession is defined as an accession where at least one sample tested positive, and these may occur on a premises that previously tested positive.

The maximum number of accessions in one week for PDCoV occurred the week of September 14, 2014 with 23 accessions. This is only two more accessions than the next-highest volume weeks, which occurred the weeks of October 26 and November 23, 2014, with 21 accessions each. Since June 5, the number of PDCoV accessions has ranged from 0 to 23 and averaged 13 accessions per week. Since the beginning of the reporting period, 16 of 28 weeks (57%) have had zero PDCoV positive accessions.

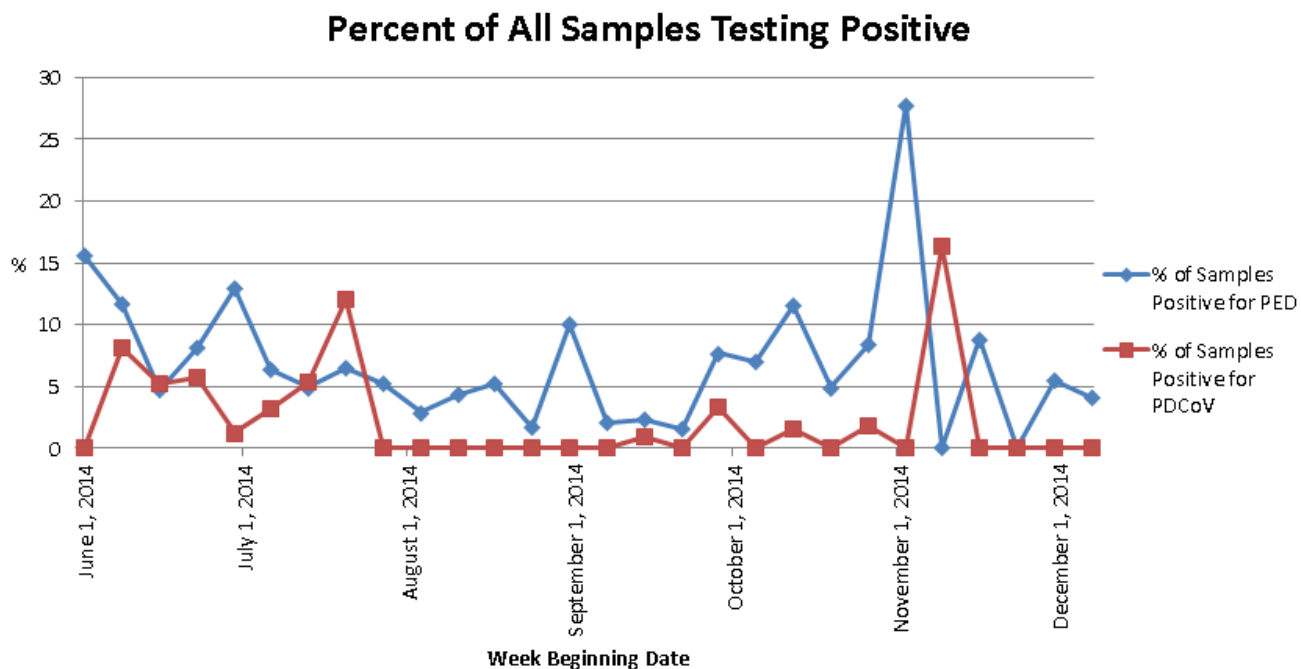
PED Accessions by Week



PDCoV Accessions by Week

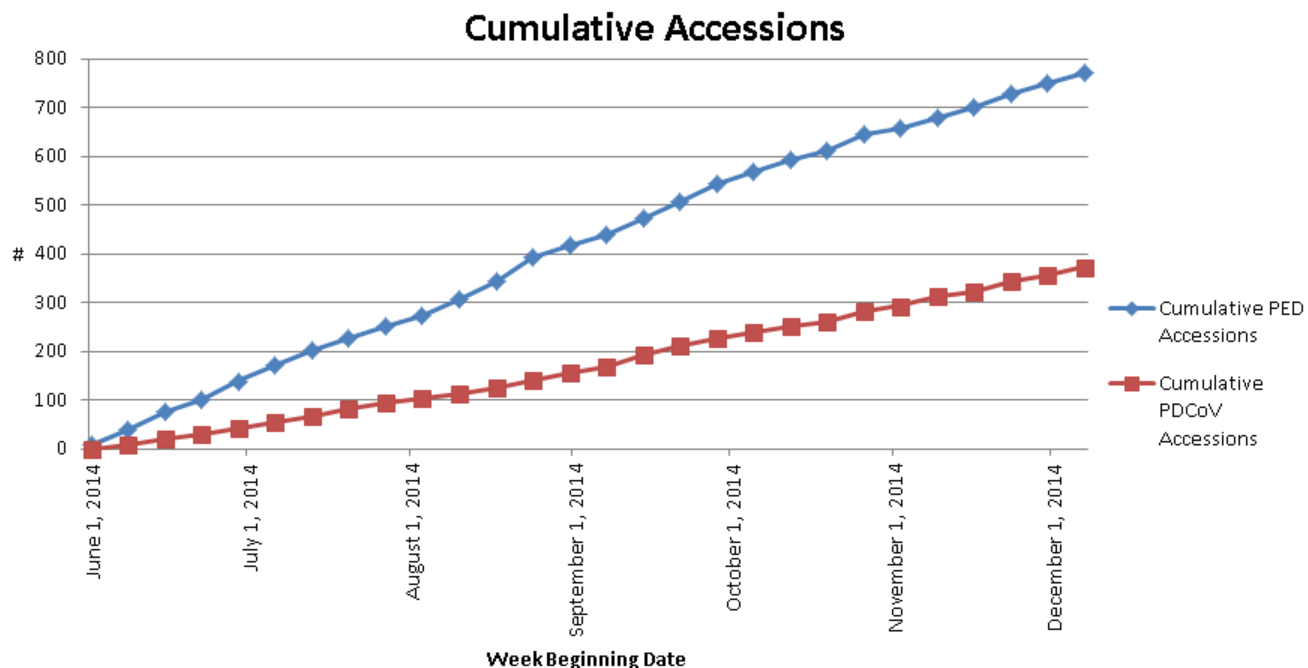


In an effort to offer a slightly different perspective on the data, the following graph shows the percent of all samples tested each week that were positive. In contrast to the previous two graphs that focused on the total number of accessions, the graph below is heavily influenced by high-volume submitters and submissions containing a large number of positive samples. However, over time this graph may better demonstrate seasonal trends in disease and the long term effect of herd clean-up efforts.

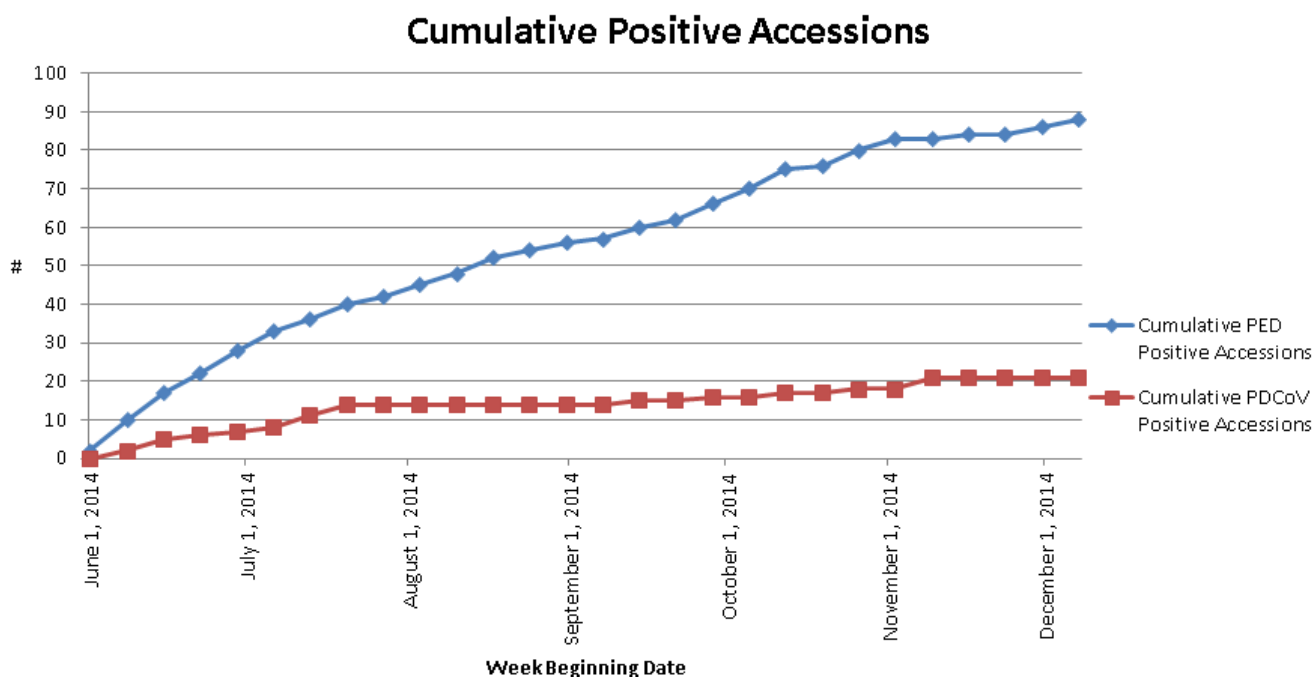


Cumulative Testing Data – June 5, 2014 through December 13, 2014

	PED	PDCoV	<i>Change from last Report— PED</i>	<i>Change from last Report—PDCoV</i>
Total Number of Accessions	773	373	53	38
Number of Positive Accessions	88	21	4	0
Number of Negative Accessions	685	352	49	38
Total Number of Samples Tested	3351	1586	177	114



Of all PED accessions, 11% have contained at least one sample that tested positive. This is true for fewer than 6% of all PDCoV accessions. Although the number of accessions submitted for SECD testing has increased steadily, the number of accessions testing positive for the two diseases has followed distinctly different paths. The cumulative number of PDCoV positive accessions has remained the same as the prior week for 15 out of 28 weeks (54%). This is true for only 2 out of 28 weeks (7%) for the cumulative number of PED positive accessions. PED testing has averaged three positive accessions per week.



Cumulative Geographic Distribution Data – June 5, 2014 through December 13, 2014

SECD testing has been distributed throughout the state, with results reported for 57 of 92 counties (62%). This mirrors the geographic distribution of commercial swine operations in Indiana. While the majority of premises and counties have tested for both PED and PDCoV, the majority of positive test results for both premises and counties have been for PED only. 32% of the premises and 58% of the counties that have submitted accessions for testing have had at least one positive result.

	Number Tested	Number with Positive Results
Premises	183	59
PED Only	84	45
PDCoV Only	3	6
PED+PDCoV	96	8
Counties	57	33
PED Only	14	22
PDCoV Only	0	4
PED+PDCoV	43	7

The maps on the left side of the following pages depict the overall results for all premises in the county that have conducted testing for PED or PDCoV, respectively, since June 5, 2014. If any premises in the county ever tested positive within that timeframe, the county is red, regardless of how long ago the test was completed or how many negative tests have occurred since the last positive test.

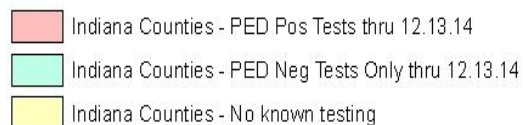
The maps on the right side of the following pages depict only the results of the last test conducted for all premises in the county for PED or PDCoV, respectively. If the last test for any premises in the county was positive the entire county is red, regardless of how long ago the test was completed.

When the two maps are compared for each virus, maps show a difference of three counties for PED and six counties for PDCoV. The fact that more premises have tested positive for PED than PDCoV is likely one of the reasons that fewer counties have “gone negative” for PED, based solely on the results of their last test.

Indiana SECD Testing - USAHERDS Data

06/05/14 through 12/13/2014

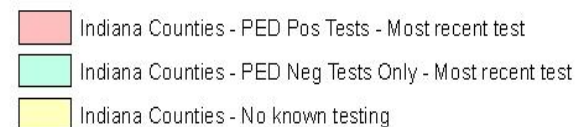
PED Testing



Indiana SECD Testing - USAHERDS Data

06/05/14 through 12/13/2014

PED Testing LAST TEST



Indiana SECD Testing - USAHERDS Data 06/05/14 through 12/13/2014

PDCoV Testing



- Indiana Counties - Pos Tests PDCoV
- Indiana Counties - Neg Tests Only PDCoV
- Indiana Counties - No known testing

Indiana SECD Testing - USAHERDS Data 06/05/14 through 12/13/2014

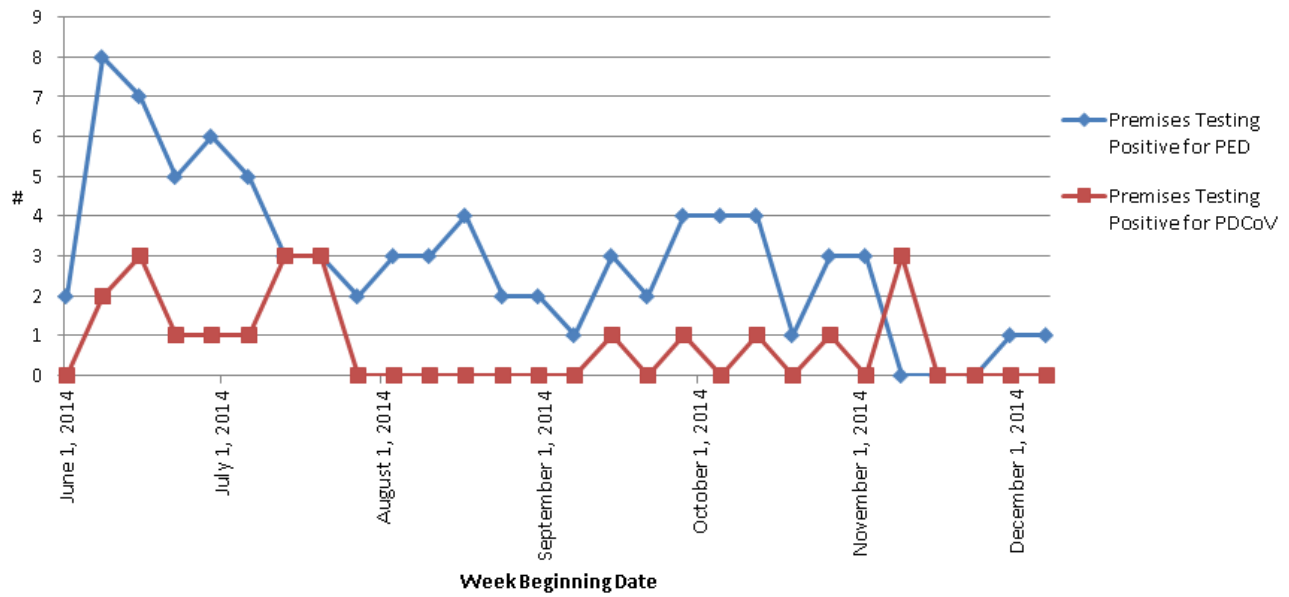
PDCoV Testing LAST TEST



- Indiana Counties - Pos Tests PDCoV - Last Test for each Farm
- Indiana Counties - Neg Tests Only PDCoV - Last Test for each Farm
- Indiana Counties - No known testing

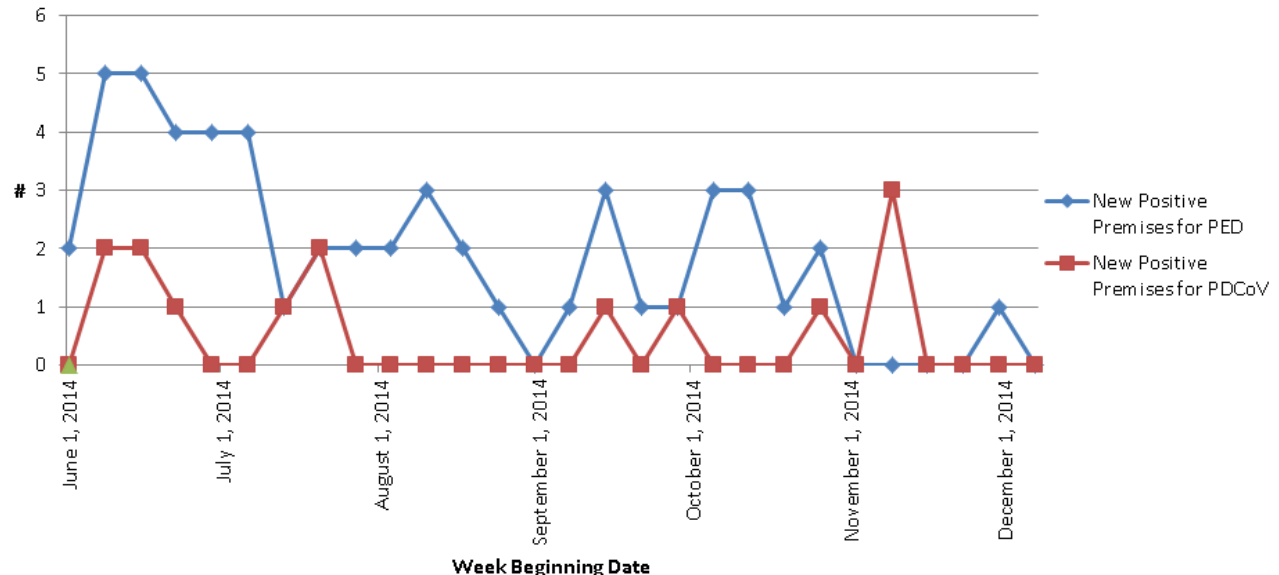
In addition to the overall number of premises testing positive and the number of premises positive based on the results of their last test, considering the distribution of premises testing positive by week is informative. The first graph below depicts all premises testing positive each week. In this graph, a premises is counted as positive once per week for every week that it has a positive test result.

Premises Testing Positive by Week



The second graph depicts only premises that have had their first positive test result in a given week. Once a premises is counted as positive, the site is not counted again in any subsequent week. Although the two graphs are not identical, and despite the differing criteria for inclusion of a given premises, the two graphs follow an extremely similar pattern.

New Positive Premises by Week



SECD Data Available from USDA

The USDA releases a weekly summary report of SECD testing occurring within the United States. The reports covering the most recent two weeks of data were included with the distribution of this report from the Indiana State Board of Animal Health. You may also access the reports via the [USDA APHIS website](#). At this website, a link to the “Weekly Situation Report” and “Situation Report Archive” may be found midway down the page, under the “SECD Reports” header.

A brief summary of the most recent Indiana data from USDA is included below; however, these numbers will likely differ from the numbers presented above. It is important to note that the USDA data does not include any environmental samples not directly associated with a farm site and live pigs (e.g., feed or swabs of livestock trailers, feed mills, markets, etc). In addition, the numbers reported here reflect only those accessions that have gone through the full USDA verification process, which typically takes about two weeks to complete.

	PED	PDCoV	PED + PDCoV
Number of Confirmed* Positive Premises	18	0	3
Number of Presumptive** Positive Premises	21	1	3

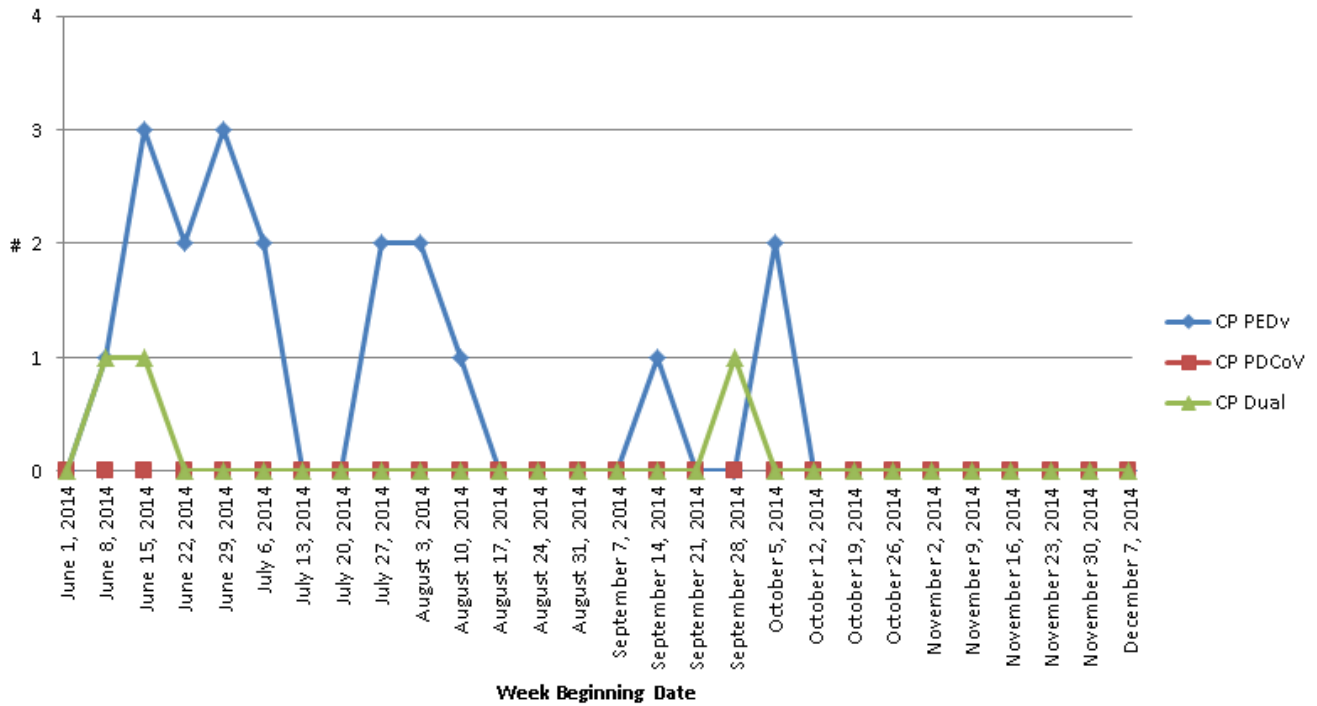
**Confirmed positive cases must have exhibited clinical signs and had a positive test*

***Presumptive positive cases have a positive test, but the animals did not exhibit clinical signs*

The effect of the verification process on the completeness of the dataset is especially evident in the following two graphs. The first graph depicts all new confirmed positive premises by week, per the USDA database. The second graph depicts all new presumptive positive premises by week, per the USDA database. Once a premises is counted, it is not counted again in any subsequent week.

In comparing these graphs to the graphs presented on page 8, it is clear that most of the accessions since mid-October that are associated with newly positive premises have not yet completed the entire USDA verification process. These pending accessions are awaiting verification by the submitting veterinarian of the associated premises ID and the presence or absence of clinical signs. As of the beginning of this week, Indiana had 16 accessions pending verification, with test dates ranging from September 11 to December 3, 2014.

New Confirmed Positive Premises by Week



New Presumptive Positive Premises by Week

